PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Taketo TAKEUCHI

Group Art Unit: 2837

Application No.: 10/559,870

Examiner: R. MCCLOUD

Filed: December 7, 2005

Docket No.: 125195

For: CONTROL DEVICE FOR A VEHICLE MOTOR

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This request is being filed with a Notice of Appeal and Petition for Extension of Time. Review of the April 10, 2008 Final Rejection is requested for the reasons set forth in the attached five or fewer sheets.

Should any questions arise regarding this submission, or the Review Panel believe that anything further would be desirable in order to place this application in even better condition for allowance, the Review Panel is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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JAO:SMS

Date: October 10, 2008

REMARKS

Claims 1-16 are pending in this application and stand finally rejected.

Appellant first notes that a Request for Reconsideration ("Request") was filed on August 8, 2008 in reply to the April 10, 2008 Final Office Action ("Office Action"). As of October 10, 2008 (more than two months after filing the Request), a response from the Examiner has yet to be mailed.

The Office Action rejects claims 1-16 under 35 U.S.C. §103(a) over Matsunaga et al. (Matsunaga), U.S. Patent No. 6,114,828, in view of Shimazaki et al. (Shimazaki), U.S. Publication No. 2002/0116100. The rejection is respectfully traversed.

Claims 1 and 9 call for the torque of the vehicle motor to be reduced when the stalled state of the vehicle is detected and when a selected temperature exceeds a restrictive temperature (with the selected temperature being from a coil of the plurality of coils where a maximum current flow is detected). Appellant asserts that the combination of Matsunaga and Shimazaki, when combined, fails to disclose or suggest each and every feature recited in independent claims 1 and 9.

Appellant respectfully submits that the rejection contains legal and factual deficiencies because (1) the references, when combined, fail to disclose or suggest using a selected temperature to determine when torque is reduced, (2) the Office Action's use of maximum current and maximum temperature is misplaced, and (3) Appellant's arguments have been misinterpreted. Appellant discusses each issue below.

(1) THE REFERENCES, WHEN COMBINED, FAIL TO SUGGEST USING A SELECTED TEMPERTURE TO DETERMINE WHEN TORQUE IS REDUCED

Pages 3 and 4 of the Office Action allege that Appellant's arguments filed December 21, 2007 improperly attack the references individually. Appellant disagrees, and asserts that, taken as a whole, Matsunaga and Shimazaki fail to disclose or suggest reducing the torque of the vehicle motor when a selected temperature exceeds a restrictive temperature (with the

selected temperature being from a coil of the plurality of coils where a maximum current flow is detected) as called for by claims 1 and 9.

Matsunaga reduces torque if the motor does not rotate (that is, if the phase domain is the same) (col. 6, lines 22-54 and Fig. 2B, steps S33 and S37) and Shimazaki simply states that the drive current of the motor is reduced if the stalled state is determined based on the accelerator opening and the rotational speed of the motor.

Specifically, in Matsunaga, at step S31 of Fig. 2B, the controller 12 determines whether the present phase domain is the same (col. 6, lines 22-26). If the phase domain is the same, the output torque of the motor 5 is reduced by subtracting a displacement torque from a limitation torque (col. 6, lines 27-54 and Fig. 2B, steps S33 and S37) in order to avoid overheating. If the phase domain is not the same, then the output torque remains the same (col. 6, lines 55-59 and Fig. 2B, step 35).

Shimazaki states that the stalled state is determined based on the accelerator opening and the rotational speed of the motor. After the stalled state is determined, Shimazaki simply states that the drive current of the motor is reduced.

Therefore, neither reference discloses using a selected temperature as called for by claims 1 and 9. Taken as a whole, if Matsunaga were to be combined with Shimazaki (which Appellant does not admit would have been obvious), then the torque of the motor would be reduced when the motor does not rotate (as discussed by Matsunaga) and/or based on the accelerator opening and the rotational speed (as discussed by Shimazaki). Therefore, taken as a whole, Matsunaga and Shimazaki when combined fail to disclose or suggest using the parameter of a selected temperature that exceeds a restrictive temperature in order to reduce the torque of the vehicle motor as called for by claims 1 and 9.

Therefore, the rejection contains legal and factual deficiencies because the claimed feature of reducing the torque when a selected temperature exceeds a restrictive temperature

is missing even after the references are combined, and such feature would not otherwise have been known or obvious.

(2) THE OFFICE ACTION'S USE OF MAXIMUM CURRENT AND MAXIMUM TEMPERATURE IS MISPLACED

Page 4 of the Office Action states that Shimazaki is being relied upon for the teaching that a maximum temperature comes from a maximum current. Appellant notes that Shimazaki fails to explicitly disclose this feature at the cited paragraphs [0015] and [0016]. Appellant provides the following explanation in order to clarify maximum temperature and maximum current in order to explain why Shimazaki fails to suggest selecting a temperature from a coil of the plurality of coils where a maximum current flow is detected, as called for by claims 1 and 9.

Decidedly, a maximum temperature becomes the temperature of a phase where a maximum current flows in a steady state. However, the current flows intensively into a phase when in the stalled state. As a result, the phase where a maximum current flows should move to a new phase at that moment when the current phase reaches a maximum temperature in order to avoid limiting the torque of the motor. The temperature of the new phase where the maximum current now flows has not become a maximum temperature yet (the previous phase is the phase that is at a higher temperature). Therefore, the phase of maximum temperature definitely differs from the phase where maximum current flows based on the change of the phase, which flows the current in a transient state. Because claims 1 and 9 use the temperature of the coil where a maximum current flows instead of the maximum temperature, a larger output torque can be attained. Shimazaki fails to discuss this concept or suggest using a selected temperature from a coil where a maximum current flow is detected as called for by claims 1 and 9.

In addition, the Office Action's use of Shimazaki for the teaching that a maximum temperature comes from a maximum current is misplaced. Claims 1 and 9 call for reducing

the torque when a selected temperature exceeds a restrictive temperature. As discussed above, Shimazaki simply states that the drive current of the motor is reduced if the stalled state is determined based on the accelerator opening and the rotational speed of the motor. Shimazaki fails to provide any suggestion with regard to using temperature, and thus it would not have been reasonably predictable to do so with the combination of Matsunaga and Shimazaki. Therefore, the rejection contains legal and factual deficiencies because there is no viable reason to modify, or to change the principles of Matsunaga and Shimazaki, in order to suggest reducing the torque when a selected temperature exceeds a restrictive temperature as called for by claims 1 and 9.

(3) APPELLANT'S ARGUMENTS HAVE BEEN MISINTERPRETED

Page 3 of the Office Action asserts that "Matsunaga discloses that the motor is stopped because it is in a locked state (Col. 2:8-33, col. 4:8-21) due to overheating (col. 6:49-55)." Appellant asserts that this statement is not on point with Appellant's previous argument and claims 1 and 9, and reflects a misunderstanding of Matsunaga.

Matsunaga's col. 4, line 50 - col. 5, line 5 discusses how a locked state of the motor 5 is determined. Matsunaga fails to state that the motor is stopped because it is in a locked state due to overheating. Matsunaga instead attempts to avoid overheating (col. 6, lines 49-55 discusses the advantage of Matsunaga's invention). As previously discussed, Matsunaga determines if the phase domain is the same in order to determine whether the output torque of the motor 5 should be reduced in order to avoid overheating (col. 6, lines 27-59).

Regardless of the point to be made, even if Matsunaga disclosed that the motor is stopped because it is in a locked state due to overheating (which Appellant asserts that Matsunaga fails to disclose), Matsunaga fails to disclose or suggest reducing the torque of the vehicle motor when a selected temperature exceeds a restrictive temperature as called for by claims 1 and 9. As clearly illustrated by Matsunaga's Fig. 2B, Matsunaga reduces the output

torque (S33 and S37) only if the limitation torque is less than the motor torque demand instruction value (S29:YES) and the phase domain is the same (S31:Yes). Matsunaga fails to consider determining if a selected temperature exceeds a restrictive temperature as called for by claims 1 and 9.

Pages 3 and 4 of the Office Action asserts that "it is noted that the features upon which applicant relies (i.e., the motor is rotating) are not recited in the rejected claim(s)." Appellant asserts that the previous argument asserted has been misinterpreted. As previously argued, Shimazaki fails to disclose or suggest reducing the torque of the vehicle motor when a selected temperature exceeds a restrictive temperature, as called for by claims 1 and 9, because Shimazaki states that the stalled state is determined (in order to determine whether the drive current of the motor should be reduced) based on the accelerator opening and the rotational speed of the motor. In other words, Shimazaki fails to disclose all of the features of claims 1 and 9 because Shimazaki discloses using another parameter (i.e., rotational speed). Appellant also asserts that all of the features relied upon are recited in claims 1 and 9.

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For at least these reasons, the Office Action includes legal and factual deficiencies. Because the prior art fails to disclose or suggest each and every feature recited in the pending claims, withdrawal of the Final Rejection and allowance of this application are respectfully requested.